CEE CORPORATE FINANCE PECULIARITIES: COMPARATIVE APPROACH IN RELATION WITH DEVELOPED COUNTRIES

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Abstract. *In order to reveal the corporate finance peculiarities, we conduct a panel data study on companies located in European emerging (Czech, Poland, Slovakia, Hungary and Romania) and developed countries (United Kingdom, France, Spain, Italy and Germany). We identify specific elements at country level which strengthen the assumptions of heterogeneity at the level of corporate finance. We reveal that both firm specific and common factors have an impact on corporations; nevertheless, comparative to similar works, the degree of heterogeneity is lower, confirming the theories of CEE inter-country high correlation.*

Keywords: CEE, corporate finance, capital structure, performance.

1. Introduction

Nowadays corporate finance has evolved from a firm-level to a country and even region approach. Companies are analyzed in the light of the deep interconnectivity that puts them in relation with the macroeconomic environment. The rationale of this approach originates in financial globalization. In order to accomplish their growth potential, companies have looked for new business segments and finance resources. In the context of the actual borderless world, capital flows have directed towards the most attractive sites in terms of return. As higher return is related to higher risk, new techniques have been adopted in order to assess risk in a more accurate way. In this context, a comparative analysis between companies' main financial characteristics from different countries can offer a clue for the dominant set of factors – national or international.

The actual financial crisis which is deeply rooted into the credit derivative products has drawn attention to the risk assessment. Rating agencies have been accused of not being able to predict in an anti-cyclical manner corporate default. Once the crisis has appeared, downgrade of debtors has been initiated and self-achieving anticipations have become predominant. Thus a deeper interest for risk modelling is required, especially from the perspective of the implementation of a powerful model, able to absorb enough significant financial information from the internal but also from the external environment of the company. Corporations are perceived as open systems which absorb and propagate influences that have become more and more interdependent lately. Therefore, corporate finance has to switch from a firm-level approach to a global one, developed at the country and even region level in order to integrate these multiple interdependencies. Previous studies on the CEE corporations have concentrated on capital structure (Colombo (2001), Dević, Krstić, (2001), Estrin et al. (2001), Dragotă and Semenescu (2008), Nivorozhkin (2002)).

Analysts have been concerned by identifying the financial structure characteristics of companies located in CEE area, inclusively in terms of mode development. Banerjee, Heshmati and Wihlborg (1999) elaborated on the concept of dynamic endogenous target leverage while Peters and Haas (2006) examine the capital structure dynamics of Central and Eastern European firms to get a better understanding of the quantitative and qualitative development of the financial systems in this region. They find that during the transition process, firms generally increased their leverage, lowering the gap between the actual and the target leverage. Profitability and age are the most robust determinants of capital structure targets. Although banking system development has in general enabled firms to get closer to their leverage targets, information asymmetries between firms and banks are still relatively large. As a result, firms prefer internal finance above bank debt and adjust leverage only slowly.

Nivorozhkin (2003) simultaneously endogenizes the adjustment factor and the target one and analyzes the determinants of target leverage in Bulgaria and Czech Republic. The author concludes that Bulgarian firms companies adjust much faster to

the target leverage than Czech companies because of conservative policies of Czech banks and exposure control.

As for CEE financial structure characteristics, analysts revealed mainly pecking order behaviour (Estrin et al. (2001) in the case of Hungary, Poland and Romania, Dragotă and Semenescu (2008) in case of Romania), high volatility of the profitability indicators, especially during transition process (Klapper et al. (2006) in the case of Slovakia, Poland, Czech and Hungary), size positively related to profitability, indebtedness and liquidity indicators (Devic, Krstic, (2001) in case of Poland and Hungary). Moreover, a negative relationship has been figured out between debt and profitability (Colombo (2001) in case of Hungary).

Other studies revealed that companies held mainly by domestic investors have lower leverage ratios while the ones held by foreign investors exhibit the opposite phenomenon (Broadman, Recanatini (2001) in case of Russia), which highlight the fact that in CEE countries leverage can not be figured out as a corporate governance mechanism. Dragotă (2006) revealed the lack of protection for minority shareholders for the case of Romania since the amounts distributed as dividends decreased.

After Modigliani and Miller (1958) theories on optimal capital structure have refined, becoming more complex. Three competing theories –Pecking-Order Theory, Trade-Off Theory and Market-Timing Theory- have appeared subsequently (Cole, 2008).

The Pecking-Order Theory (POT) (Myers, Majluf (1984), Myers (1984)) concentrates on the concept of asymmetric information between managers and investors (capital market), which creates an incentive for managers to resort to external financing. The theory assumes a preference of managers for financing resources with low degree of asymmetric information since the cost of debt is commensurate with this variable which triggers a gradual process in terms of financing resources: „inside" equity, debt and finally „outside" equity. According to this theory, there is no optimal capital structure, especially from the perspective of a certain debt to equity ratio.

In line with this theory, Filatotchev et al. (2007) examined the correlations between managers' independence, corporate governance mechanisms and company performance at the level of 157 Polish and Hungarian companies. They found that managers' independence is positively associated with firms' financial performance and negatively associated with ownership concentration.

The Trade-Off Theory implies firm' managers concern for balancing debt advantages reflected into the deductibility of interest expenses and financial distress cost which is correlated with leverage. The debt benefits derive from fiscal advantage, disciplinary role and decrease of informational/agency cost. In line with this theory, there is an optimal debt to equity ratio, where tax shields are compensated by costs of financial distress. Trade-Off Theory reflects a direct relationship between leverage and profitability, explained through three vectors: 1) strong cash-flow (which is perceived positively by lenders and therefore creates incentives to more leverage) reduces bankruptcy risk; 2) more tax shields which generates profitability are associated with

leverage increase; 3) leverage determines agency costs mitigation which eventually supports profitability.

Trade-Off Theory embeds leverage being inversely related to rate of investment and to Tobin's Q ratio. High investment triggers a low debt level. In opposition, Pecking Order Theory implies that leverage is decreasing in company cash-flow/profitability and increasing in the investment being undertaken by the firm (Benito, 2003).

Baker and Wurgler (2002) laid down Market-Timing Theory, which assumes a certain management effort to time the capital structure, respectively to issue equity in hot equity markets (i.e. periods of time when stock market values are higher than book values) and debt in cold equity markets (i.e. periods of time when stock market values are inferior to book values). Thus capital market becomes a time function: in cold equity markets, debt to equity ratio increases while in hot equity markets it decreases. Similarly to the POT theory, there is no optimal capital structure.

Literature revealed several polemics on the financial structure theories; Leary and Roberts (2005), Flannery and Rangan (2006) as well as Kahan and Titman (2006) highlighted that market timing theory can be explained by transaction/adjustment costs that determine companies to switch from a capital market to another. Graham and Harvey (2001) point out that transaction costs accompanied by firm dimension trigger a high degree of capital structure differentiation, especially at the level of multinational companies.

This paper concentrates on the peculiarities of the CEE corporate finance. It continues similar approaches initiated by Rajan and Zingales (1997), Jalilvand and Harris (1984), Banerjee et al. (1999), Myers (1999), Nivorozhkin (2003) or Dragotă et al. (2010).

Ever since 1997, Rajan and Zingales performed cross-country analysis at the level of corporate capital structure, revealing important commonality for the G-7 countries, reflected by similar leverage. They identify institutional context (bankruptcy law, fiscal treatment, ownership concentration, accounting standards) to be main determinant of capital structure.

Later, Booth, Aivazian, Demirguc-Kunt and Maksimovic (2001) analyzed companies from ten developing countries, underlining lower long term debt in comparison with corporations based in developed countries. Nevertheless, they find similar common factors exerting a deep impact on financial resources mixture. Noe (2000) elaborates an equilibrium model of capital structure for multinational companies, facing different legal and fiscal regimes, which force them to build up different strategies of debt renegotiation.

Recently there have been developed theories on dynamic financial structure, characterized by an adjustment process to target debt-to-assets ratio. Kremp et al. (1999) found the dynamic adjustment process at the level of a sample of German and French companies, with a deep impact exerted by the institutional framework (Hausbank system in Germany and the tax policy in France). De Miguel and Pindado (2001) highlighted the same features at the level of Spanish companies.

We aim at identifying potential common features in terms of capital structure and financial indicators interdependencies as well as specific elements at country level which strengthen the assumptions of heterogeneity at the level of corporate finance.
This paper is organized as follows: Section 2 encompasses database and methodology depiction.

2. Database and methodology

In order to reveal corporate finance peculiarities at the intraregional level, especially in terms of capital structure, there will be conducted a panel data study using Generalized Least Squares Method at the level of 50 cross-section units.

The sample includes companies located both in emerging (Czech, Romania, Slovakia, Poland and Hungary) and developed countries. Financial data has been extracted from the www.corporateinformation.com site and cover ten years (1997-2007). There has not been a precise rationale for selecting the five CEE countries except for financial data availability reason.

The sample includes 10 companies per country.

The companies the research is conducted on are characterized by a turnover of EUR 100.000 – 800.000 per year and an age of about 4-10 years; we have not applied any filter in terms of field activity except for the exclusion of financial services firms because of their peculiarities in terms of capital structure. In order to avoid negative effects of outliers and missing data, we restrained our database to companies which disclosed financial information on a continuous period of 10 years (1997-2007).

The correlation matrix revealed the fact that variables lack in multicollinearity.

After performing the Hausman test, we figured out the core model to be the random effects panel regression of the form

$$Y_{it} = \alpha + ßx_{it} + \omega_{it}\,,\ \omega_{it} = \varepsilon_i + v_{it}$$

where

t = 1, …, T (time period), I = 1, …., n cross-sectional observation unit in the sample;
x_{it} is a vector of explanatory variables;
α is a common intercept to all the cross-sectional units and over time;
ω_{it} is the error term;
ε_i is the cross-sectional error term (assumed to have 0 mean and constant variance);
v_{it} is the individual observation error term.

There were been proposed four regressions, respectively:

$$G\_iit = \alpha i + ß1 * T\_Ait + ß2 *Sizeit + ß3*Debt\_ebitit + ß4*I\_cit + ß5*Tca\_nsit + ß6*Lta\_tait + \omega it \quad (1)$$

$$Fin\_lev_{it} = \alpha_i + \beta_1 * G\_i_{it} + \beta_2 * Tca\_ns_{it} + \beta_3 * T\_A_{it} + \beta_4 * Size_{it} + \beta_5 * Debt\_ebit_{it} + \omega_{it} \quad (2)$$

$$ROE_{it} = \alpha_i + \beta_1 * Fin\_lev_{it} + \beta_2 * I\_c_{it} + \beta_3 * Size_{it} + \beta_4 * Debt\_ebit_{it} + \beta_5 * Tca\_ns_{it} + \omega_{it} \quad (3)$$

$$Debt\_ebit = \alpha_i + \beta_1 * T\_A_{it} + \beta_2 * Size + \beta_3 * ROA + \beta_4 * Fin\_lev + \beta_5 * Tca\_ns + \omega_{it} \quad (4)$$

Where:

G_i = Gross Profit/Total sales
T_A = Tangible Assets/Total Assets
Size = log(Assets)
Debt_EBIT = Total Debt/Earnings before interest and taxes
I_c = Inventory to cash and equivalents
Lta_ta = Long term debt to total assets
Fin_lev = Debt/Equity
ROA = Return on assets
ROE = Return on equity
Tca_ns = Total current assets to Net Sales

The rationale for concentrating on these variables consists of the large coverage area in terms of financial information (see Annex 1). Current ratio captures the operational equilibrium of the company, enclosing its ability to meet the current obligations and to ensure proper asset management strategies. Solvency ratios reflect both the capital structure peculiarities as well as the company's capacity to cover the long term financial needs while profitability indicators enclose its performance.

Profitability is reflected by indicators including net (return on equity, return on assets) as well as gross profit (gross margin) in order to highlight the company's performance both under the impact of fiscal dimension as well as out of the impact of tax shields. Inventory to cash and equivalents and Total current assets to Net Sales have been selected in order to reveal the company's ability to manage its production cycle.

As for financial structure of the company, we concentrated especially on the indicators pointing out the mixture between internal and external financial resources such as the weight of long term debt into total assets as well as the report between debt and equity.

Debt to EBIT ratio has been selected in order to reveal the company's ability to cover the financial obligations by the intermediary of the surplus value generated by the company's current activity. The rationale for focusing on these financial indicators is based on their highlight in the fundamental corporate finance literature as well (Brealey, Myers, 2000).

Regressions are conceived bi-dimensionally: on one hand, they focus on explaining the impact of liquidity, solvency and indebtedness on the capital structure; on the other hand, they study the influence of capital structure indicators on profitability. The key point consists of capturing the corporate cross-country heterogeneity at the level of main financial indicators; we figure out important differentiations at country level, emphasizing the interactions across various indicators.

Frank and Goyal (2006) identify a series of difficulties implied by panel-data studies: leverage definition (market versus book data), outliers and missing data treatment. As for leverage definition, our database integrates both listed and non-listed companies; therefore, we approach only book values of debt and equity in order to lay a consistent and robust ground at the level of the whole database. Moreover, Graham and Harvey (2001) conducted a survey on US executives, revealing their preference for book values in terms of financing policy set-up. Gaud et al. (2003) highlighted that book values should be used in case of random effects models. In case of outliers and missing data, we approached companies that exhibit a continuous activity during the analyzed time period and we eliminate those activating in the financial services field.

The research is oriented to an inter-countries approach, extending towards companies located in European developed countries. We propose to reveal the CEE corporate peculiarities valorising a comparative approach in reference to the developed countries.

The regressions aim at revealing peculiarities of the connectivity and interdependencies between capital structure, profitability and asset management indicators corresponding to 50 cross-sectional units. We assume CEE corporate finance both to vary cross-sectionally, but also to reveal important commonality derived out of similar patterns in terms of macroeconomic volatility and capital market development (Nivorozhkin, 2003). In comparison with similar previous approaches (Klapper et al., 2006), our research proposes a more extended perspective in terms of corporate finance indicators interconnectivity at the level of CEE countries; we do not limit only to leverage, but we extend the perspective also towards profitability and asset management ratios. Moreover, there has not been much work on CEE corporate finance lately. Following an individual review of the relevant literature, we concluded that previous approaches are limited to 2003 time period. We extend the period of observation until 2007 and we point out that several modifications took place, which diminishes the heterogeneity degree.

Research has been refined to a comparative analysis at the level of companies located both in developed and emerging countries. First, financial indicators have been aggregated at the country level, respectively we built up a sample integrating financial data relative to companies located in emerging and developed countries.

We consolidated financial indicators corresponding to the analyzed time period from a global perspective; selection criteria consisting of previous cross-sectional units have been eliminated.

Comparative analysis is based on three out of the four initial tested regressions since in the case of the fourth regression (i.e. containing ROE as dependent variable) statistic results are not significant. This aspect can be explained from the perspective of the low importance of ROE as profitability indicator in the case of the developed countries; previous studies (Klapper, 2003) revealed that companies located in developed countries promote an aggressive leverage, in opposition with the pecking order behaviour, characteristic to companies located in emerging countries.

Moreover, Erol (2004) revealed that leverage decisions derive from market strategies depending on the maturity structure; corporate debt in advanced countries is predominantly long term, while it is predominantly short term in developing countries. The first equation (i.e. gross margin as dependent variable) delivers similar results for the two databases in terms of negative effect exerted by debt to EBIT ratio and the weight of long term debt into total assets.

In both cases, statistic output reveals that a high debt burden impacts negatively profitability, validating the pecking order theory, in line with previous researches conducted both at the level of developed (Benito, 2003, Fama, French, 2002 and emerging countries (Nivorozhkin, 2003). Thus, 1% variation of debt to EBIT ratio triggers a gross margin modification of -2.870% in case of emerging countries and of -3.064% in case of developed countries; the magnitude of the negative effect is higher as for developed countries. We expected the negative effect to be higher in case of emerging countries because of their non-receptiveness to indebtedness (see Annex 2).

Nevertheless, this assumption is confirmed as for the effect of long term debt weight into total assets. The intensity of the weight of long term debt into total assets impact on profitability is higher in case of emerging countries. At the level of the CEE countries, 1% variation of this indicator determines a modification of 1.721% in terms of profitability while at the level of the developed countries, a similar dynamic trigger a variation of 0.066. Size and tangibility have a positive effect on profitability, both in case of developed and emerging countries, but the intensity of the effects is different from one sample to the other.

Size impact on profitability is quite similar in terms of magnitude (1.025 in case of developed countries and 1.85 in case of emerging countries) which is higher as for the CEE countries; we interpret this aspect deriving from the fact that in developed countries profitability is not necessarily equivalent with companies' dimension meaning that in developed countries even firms of small dimensions have high profitability opportunities. Companies activating in innovative fields such as IT, human resources, financial services proved to be very profitable in spite of their low dimension. Higher profitability perspectives are supported by large capital markets, with various financing alternatives (i.e. business angels are targeted especially for IT companies) as well as by a strong interest in intellectual capital valorisation encompassed with the innovative activities.

In CEE countries, size is an important trigger of profitability, acting frequently as a profitability filter; small and middle enterprises lack in financing

resources since capital markets are not sufficiently developed in order to offer them the necessary financial support. Thus large companies are more likely to become profitable. Benito (2003) identifies size as an inverse proxy for financial distress and for severity of informational asymmetries as well as an incentive to earnings volatility mitigation. Meanwhile, Carpenter and Petersen (2002) pointed out that large firms face high adjustment costs to target leverage (i.e. reduction or elimination of dividends, employment reduction).

Tangibility contribution to profitability is obviously higher in case of CEE countries (114% in comparison with 44.6%). We consider the strong magnitude to be triggered by the collateralization degree importance; within CEE countries, external financial resources are conditioned on the collateral. In developed countries, the lending standards are not rigorous to the same extent, the access to external financing being more flexible, with lower requirements in terms of collateral (see Annex 4).

The second equation presents the strongest similarity in terms of independent variables impact corresponding to the two samples. Gross margin, debt to EBIT ratio, total current assets to net sales exert a negative effect on financial leverage both in case of developed and emerging countries. The positive effect is exerted by size while the only difference consists of the impact exerted by tangibility.

The weight of tangible assets into total assets exerts a positive effect on leverage in case of emerging countries and a negative effect in case of developed countries, validating the previous assumption relative to the importance of the collateralization degree.

In this case, size contributes positively to financial leverage while in the fourth equation, it is negatively correlated with debt to EBIT ratio in case of developed countries and positively in case of emerging countries, confirming the theory according to which size acts both as a profitability and debt coverage filter as for the CEE area.

The random effects are strongly negative in case of the first equation relative to the developed countries (see Annexes 3 and 5).

The sample corresponding to emerging countries exhibits highly positive random effects as for the all four regressions. The second equation presents the highest random effects in terms of magnitude in case of both samples, revealing the consistent peculiarities of financial leverage at the country level.

Nevertheless, both samples highlight important specific features of the corporate segment at the country level, pointing out that corporations based in developed as well as in emerging countries are highly impacted by macroeconomic factors, originating in systemic structures.

3. Conclusions

Research includes a comparative analysis on companies located in European developed and emerging countries. We consolidated financial indicators corresponding to the analyzed time period from a global perspective; selection criteria consisting of previous cross-sectional units have been eliminated.

This paper revealed corporate finance peculiarities at the intra-regional level. We identified potential common features in terms of capital structure and financial indicators interdependencies as well as specific elements at country level which strengthen the assumptions of heterogeneity at the level of corporate finance.

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The remaining errors are ours.

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Annex 1

List of financial indicators

Financial indicator	Formula	Source	Acronym
Gross margin	Gross Income/Turnover	Balance sheet and Profit and Loss Account	G_i data
Total Current Assets to Net Sales	Total Current Assets/Net Sales	Balance sheet and Profit and Loss Account	Tca_ns
Inventory to Cash	Inventory/Cash	Balance sheet	Inv_cash
Funds from operational activity to Current liabilities	Funds from operational activity/Current liabilities	Balance sheet and Profit and Loss Account	Ffo_cl
Funds from operational activity to Total Debt	Funds from operational activity/Total Debt	Balance sheet and Profit and Loss Account	Ffo_td
Long term debt to Total assets	Long term debt/Total assets	Balance sheet	ltd/ta
Total Debt to Earnings before interest and taxes	Total Debt/Earnings before interest and taxes	Balance sheet and Profit and Loss Account	debt_ebit
Financial leverage	Debt/Equity	Balance sheet	Fin_lev
Return on equity Return on assets	Net Profit/Equity Net Profit/Total Assets	Balance sheet and Profit and Loss Account	Roe Roa

Annex 2

Statistic output at the CEE countries aggregate level

Equation / Indicator	Equation I	Equation II	Equation III	Equation IV
Gross Margin	Dependent variable	-2.867** (1.559) 0.183		
Return on equity			Dependent variable	
Return on assets				-2.846** (1.439) 0.970
Financial Leverage		Dependent variable	1.697** (7.982) 0.021	2.436 (3.057) 0.796
Debt to EBIT	-2.870 (1.72) 0.0016	-2.165 (1.745) 1.240	-4.731 (2.337) 0.002	Dependent variable
Long Term Debt to Total Assets	-1.721* (2.600) 0.002			
Inventory to cash and equivalents	-1.140*** (1.425) 0.020		3.210*** (0.695) 0.030	
Total current assets to Net Sales	-1.471** (3.570) 0.6807	-1.750** (2.138) 0.081	0.767 (2.499) 0.030	-1.497* (1.280) 0.006
Size (log (sales))	1.850*** (2.790) 0.030	0.696 (1.745) 0.006	1.352** (4.414) (0.030)	1.113 (2.180) 0.005
Tangible Assets to Total Assets	1.140** (0.930) 0.002	1.486 (4.825) 0.100		1.682** (0.889) 0.889
Adjusted R-squared	0.308	0.130	0.200	0.350

Annex 3

Random effects corresponding to the CEE countries aggregate level

Equation / Country	Equation I	Equation II	Equation III	Equation IV
Romania	30.908	40.860	6.872	8.860
Slovakia	30.908	54.283	3.758	1.767
Hungary	15.360	28.279	3.836	16.373
Czech	13.859	31.240	7.323	8.483
Poland	19.471	40.860	9.488	4.194

Annex 4

Statistic output at the developed countries aggregate level

Indicator \ Equation	Equation I	Equation II	Equation IV
Gross Margin	Dependent variable	-2.562* (-0.792) 0.006	
Return on equity			
Return on assets			7.049** (1.635) 0.311
Financial Leverage		Dependent variable	-1.577 (-2.886) 0.005
Debt to EBIT	-3.064 (1.911) 0.001	-5.332 (-2.394) 0.022	Dependent variable
Long Term Debt to Total Assets	-0.066* (1.162) 0.057		
Inventory to cash and equivalents	5.680*** (0.308) 0.001		
Total current assets to Net Sales	0.695** (1.455) 0.004	-5.473*** (-0.995) 0.007	-31.645* (-1.233) 0.002
Size (log (sales))	1.025*** (1.755) 0.004	0.163** (0.740) 0.003	-0.517 (-5.311) 0.007
Tangible Assets to Total Assets	0.446** (1.495) 0.298	-2.562*** (-6.756) 0.792	-21.436 (-1.266) 0.924
Adjusted R-squared	0.239	0.169	0.166

Annex 5

Random Effects corresponding to the developed countries aggregate level

Equation / Country	Equation I	Equation II	Equation IV
France	-39.241	36.818	26.28354
United Kingdom	-42.786	30.013	26.31629
Spain	-44.991	35.900	26.22289
Germany	-45.952	34.775	25.34242
Italy	-42.281	38.166	30.86171